

Translation

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

Rec'd PCT/PTO 03 OCT 2004

PCT/EP2003/003107



Applicant's or agent's file reference 1143-PCT/PL	<b>FOR FURTHER ACTION</b> See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)	
International application No. PCT/EP2003/003107	International filing date (day/month/year) 26 March 2003 (26.03.2003)	Priority date (day/month/year) 08 April 2002 (08.04.2002)
International Patent Classification (IPC) or national classification and IPC H02P 6/16		
Applicant DR.JOHANNES HEIDENHAIN GMBH		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.  <input checked="" type="checkbox"/> This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).  These annexes consist of a total of <u>3</u> sheets.
3. This report contains indications relating to the following items:  I <input checked="" type="checkbox"/> Basis of the report II <input type="checkbox"/> Priority III <input type="checkbox"/> Non-establishment of opinion with regard to novelty, inventive step and industrial applicability IV <input type="checkbox"/> Lack of unity of invention V <input checked="" type="checkbox"/> Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement VI <input type="checkbox"/> Certain documents cited VII <input type="checkbox"/> Certain defects in the international application VIII <input type="checkbox"/> Certain observations on the international application

Date of submission of the demand 27 August 2003 (27.08.2003)	Date of completion of this report 14 July 2004 (14.07.2004)
Name and mailing address of the IPEA/EP  Facsimile No.	Authorized officer  Telephone No.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP2003/003107

## I. Basis of the report

### 1. With regard to the elements of the international application:\*

- ☐ the international application as originally filed
- ☒ the description:  
 pages 1-7, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☒ the claims:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, as amended (together with any statement under Article 19  
 pages \_\_\_\_\_, filed with the demand  
 pages 2-9/1, filed with the letter of 14 Jun 2004/06 March 2004
- ☒ the drawings:  
 pages 1/2-2/2, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_
- ☐ the sequence listing part of the description:  
 pages \_\_\_\_\_, as originally filed  
 pages \_\_\_\_\_, filed with the demand  
 pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

### 2. With regard to the language, all the elements marked above were available or furnished to this Authority in the language in which the international application was filed, unless otherwise indicated under this item. These elements were available or furnished to this Authority in the following language \_\_\_\_\_ which is:

- ☐ the language of a translation furnished for the purposes of international search (under Rule 23.1(b)).
- ☐ the language of publication of the international application (under Rule 48.3(b)).
- ☐ the language of the translation furnished for the purposes of international preliminary examination (under Rule 55.2 and/or 55.3).

### 3. With regard to any nucleotide and/or amino acid sequence disclosed in the international application, the international preliminary examination was carried out on the basis of the sequence listing:

- ☐ contained in the international application in written form.
- ☐ filed together with the international application in computer readable form.
- ☐ furnished subsequently to this Authority in written form.
- ☐ furnished subsequently to this Authority in computer readable form.
- ☐ The statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.
- ☐ The statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished.

### 4. ☐ The amendments have resulted in the cancellation of:

- ☐ the description, pages \_\_\_\_\_
- ☐ the claims, Nos. \_\_\_\_\_
- ☐ the drawings, sheets/fig \_\_\_\_\_

### 5. ☐ This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).\*\*

\* Replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report since they do not contain amendments (Rule 70.16 and 70.17).

\*\* Any replacement sheet containing such amendments must be referred to under item 1 and annexed to this report.

# INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/EP 03/03107

## V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

### 1. Statement

Novelty (N)	Claims	1 - 9	YES
	Claims		NO
Inventive step (IS)	Claims	1 - 9	YES
	Claims		NO
Industrial applicability (IA)	Claims	1 - 9	YES
	Claims		NO

### 2. Citations and explanations

Reference is made to the following document:

D1: XP000617549, "A PROCEDURE TO ESTIMATE THE ABSOLUTE POSITION OF THE ROTOR FLUX OF A PERMANENT MAGNET SYNCHRONOUS MACHINE", EUROPEAN CONFERENCE ON POWER ELECTRONICS AND APPLICATIONS, 1991 (BACKHAUS; REINOLD; KALKER).

### Subject

The application relates to a method for determining the position of the rotor in a synchronous motor.

### Distinguishing technical features

Document D1 is considered to be the closest prior art. Said document describes a method for determining the position of the rotor in a synchronous motor, a plurality of current vectors being applied in different directions to the synchronous motor, and the current vector value required for achieving a predetermined rotor offset being established. The position of the rotor is calculated from at least one angular position of the current vector,

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at which the value of the current vector required to achieve the predetermined rotor offset is lowest.

The application contains two independent claims that differ from the prior art by virtue of the following features:

- the motor is stopped;
- once the current vector is no longer applied, the rotor returns to its starting position.

In consequence, claims 1-9 are novel.

#### **Problem of interest**

The rotor position can be determined by means of the features of claims 1 and 9, all the movements being controlled.

In consequence, claims 1-9 are inventive.